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AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

1. (Currently Amended) Transmitter arrangement, comprising:

a first modulation unit ~~(50)~~ having a first digital signal processor ~~(52)~~ and a first analogue signal generator ~~(56)~~;

said first digital signal processor ~~(52)~~ having a first digital signal input ~~(51)~~;

a first power amplifier ~~(64)~~, connected to an output of said first analogue signal generator ~~(56)~~;

a second modulation unit ~~(70)~~ having a second digital signal processor ~~(72)~~ and a second analogue signal generator ~~(76)~~;

said second digital signal processor ~~(72)~~ having a second digital signal input ~~(71)~~;

a second power amplifier ~~(84)~~, connected to an output of said second analogue signal generator ~~(76)~~;

combiner device ~~(90)~~ connected to outputs of said first and second power amplifiers ~~(64,84)~~; and

transmitter device ~~(91)~~ connected to an output of said combiner device ~~(90)~~, ~~characterized in that~~ said first digital signal processor ~~(52)~~ further comprises :

at least one first non-constant envelope modulation means ~~(53)~~;

a first signal component separator ~~(65)~~ connected to an output of said at least one first non-constant envelope modulation means ~~(53)~~;

a first output of said first signal component separator ~~(65)~~ being connectable to said first analogue signal generator ~~(56)~~;

first means for receiving modulation instructions ~~(49)~~;

at least one first constant envelope modulation means ~~(54)~~ connectable to said first analogue signal generator ~~(56)~~;

and first modulation selecting means ~~(55)~~ for connecting a modulation means to said first digital signal input ~~(51)~~ in response to received modulation instructions ~~(49)~~.

2. (Currently Amended) Transmitter arrangement according to claim 1, ~~characterized in that~~ wherein said second digital signal processor ~~(72)~~ further comprises:

at least one second non-constant envelope modulation means ~~(73)~~ of the same type as said at least one first non-constant envelope modulation means ~~(53)~~; and

a second signal component separator ~~(85)~~ connected to an output of said at least one second non-constant envelope modulation means ~~(73)~~;

an output of said second signal component separator ~~(85)~~ being connectable to said second analogue signal generator ~~(76)~~;

a sum of a signal of said first output of said first signal component separator ~~(65)~~ and a signal of said output of said second signal component separator ~~(85)~~ being equal to a signal of said output of said at least one first non-constant envelope modulation means ~~(53)~~.

3. (Currently Amended) Transmitter arrangement according to claim 1, ~~characterized in that~~ wherein a second output of said first signal component separator ~~(65)~~ being connectable to said second analogue signal generator ~~(76)~~.

4. (Currently Amended) Transmitter arrangement according to claim 1~~, 2 or 3~~, ~~characterized in that~~ wherein said second digital signal processor ~~(72)~~ further comprises:

second means for receiving modulation instructions ~~(69)~~;

at least one second constant envelope modulation means ~~(74)~~ connectable to said second analogue signal generator ~~(76)~~; and

second modulation selecting means ~~(75)~~ for connecting a modulation means to said second digital signal input ~~(71)~~ in response to received modulation instructions ~~(69)~~.

5. (Currently Amended) Transmitter arrangement according to claim 4, ~~characterized in that~~ wherein said first and second modulation selecting means ~~(55, 75)~~ are operable on a time slot basis.

6. (Currently Amended) Transmitter arrangement according to ~~any of the claims 1 to 5~~claim 1, ~~characterized by~~ further comprising:

first power monitor ~~(93)~~ sensing a total power to said transmitter device ~~(91)~~ or a quantity directly related thereto; and

phase-shifter ~~(63)~~ connected to said first power monitor ~~(93)~~, arranged for causing a phase shift of an analogue signal generated by said first analogue signal generator ~~(56)~~ in response to said sensed total power.

7. (Currently Amended) Transmitter arrangement according to claim 6, ~~characterized in that~~ wherein said first power monitor ~~(93)~~ is a power meter of a load ~~(92)~~ of said combiner device ~~(90)~~.

8. (Currently Amended) Transmitter arrangement according to claim 6 ~~or 7~~, ~~characterized in that~~ wherein said phase-shifter ~~(63)~~ comprises means for complex multiplication of said phase shift ~~(Δθ)~~ with a digital signal to be inputted to said analogue signal generator ~~(56)~~.

9. (Currently Amended) Transmitter arrangement according to claim 6 ~~or 7~~, using GMSK modulation, ~~characterized in that~~ wherein said phase-shifter ~~(63)~~ comprises means for introducing a phase offset ~~(Δθ)~~ in said GMSK modulation, generated by using a table driven state machine in said first digital signal processor ~~(52)~~.

10. (Currently Amended) Transmitter arrangement according to ~~any of the claims 6 to 9~~claim 6, ~~characterized by~~ further comprising means for providing said first and

second digital inputs ~~(51, 71)~~ with the same digital signal, and said first and second means for receiving instructions ~~(59, 69)~~ with the same instructions of a constant envelope modulation, allowing transmitter coherent combining.

11. (Currently Amended) Transmitter arrangement according to ~~any of the claims 6 to 10~~claim 6, ~~characterized by~~ further comprising:

second power monitor ~~(96)~~ sensing a power on said output of said first power amplifier ~~(64)~~ and being connected to said phase-shifter ~~(63)~~; and

third power monitor ~~(97)~~ sensing a power on said output of said second power amplifier ~~(84)~~ and being connected to said phase-shifter ~~(63)~~;

said phase-shifter ~~(63)~~ being arranged for causing a phase shift ~~(Δθ)~~ in response to a comparison between said sensed total power and said sensed power on said output of said first and second power amplifier ~~(64, 84)~~, respectively.

12. (Currently Amended) Transmitter arrangement according to ~~any of the claims 1 to 11~~ claim 1, ~~characterized in~~ wherein that said first and second non-constant envelope modulation means are selected from the list of:

4-PSK modulation means;

8-PSK modulation means; and

means ~~(220)~~ for combination of at least two carriers.

13. (Currently Amended) Transmitter arrangement according to ~~any of claims 4 to 12~~claim 4, ~~characterized in that~~ wherein said first and second constant envelope modulation means are GMSK modulation means ~~(54, 74)~~.

14. (Currently Amended) Method for generating a transmitter signal in a transmitter arrangement ~~(45)~~ having at least a first and a second modulation unit ~~(50, 70)~~ arranged in parallel, each one allowing for at least one non-constant envelope modulation

and at least one constant envelope modulation, said first modulation unit ~~(50)~~ having a first analogue signal generator ~~(56)~~, said second modulation unit ~~(70)~~ having a second analogue signal generator ~~(76)~~, comprising the steps of:

providing digital signal ~~(51, 71)~~ to said first and second modulation units ~~(50, 70)~~;

providing modulation information ~~(49, 69)~~ to said first and second modulation units ~~(50, 70)~~;

creating a first input signal to said first analogue signal generator ~~(56)~~ by performing a constant envelope modulation of a first digital signal ~~(51)~~ provided to said first modulation unit ~~(50)~~ as a response of said modulation information ~~(49)~~ being a request for a constant envelope modulation, and by performing a non-constant envelope modulation of said first digital signal ~~(51)~~ and separating a first component of said non-constant envelope modulated first digital signal as a response of said modulation information ~~(49)~~ being a request for a non-constant envelope modulation;

creating a second input signal to said second analogue signal generator ~~(76)~~ by performing a constant envelope modulation of a second digital signal ~~(71)~~ provided to said second modulation unit ~~(70)~~ as a response of said modulation information ~~(69)~~ being a request for a constant envelope modulation, and by performing a non-constant envelope modulation of said first digital signal ~~(51)~~ and separating a second component of said non-constant envelope modulated first digital signal as a response of said modulation information ~~(69)~~ being a request for a non-constant envelope modulation;

generating a first output signal in said first analogue signal generator ~~(56)~~ according to said first input signal;

generating a second output signal in said second analogue signal generator ~~(76)~~ according to said second input signal;

amplifying said first output signal;

amplifying said second output signal;

combining said first and second amplified output signals to form an analogue transmitter signal.

15. (Currently Amended) Method according to claim 14, ~~characterized in that~~ wherein said providing steps are performed on a time slot basis.

16. (Currently Amended) Method according to claim 14 ~~or 15~~, ~~characterized in that~~ wherein said modulation information comprises a request for a non-constant envelope modulation, whereby said step of creating a second input signal to said second analogue signal generator ~~(76)~~ is performed on said first signal ~~(51)~~ in said first modulation unit ~~(50)~~, said method comprising the further step of transferring of said second input signal from said first modulation unit ~~(50)~~ to said second analogue signal generator ~~(76)~~.

17. (Currently Amended) Method according to claim 14 ~~or 15~~, ~~characterized in that~~ wherein said modulation information comprises a request for a non-constant envelope modulation, and said second digital signal ~~(71)~~ is identical with said first digital signal ~~(51)~~, whereby said step of creating a second input signal to said second analogue signal generator ~~(76)~~ is performed on said second signal ~~(71)~~ in said second modulation unit ~~(70)~~.

18. (Currently Amended) Method according to claim 16 ~~or 17~~, ~~characterized in that~~ wherein said non-constant envelope modulation is a 8-PSK modulation ~~(53,73)~~.

19. (Currently Amended) Method according to claim 16 ~~or 17~~, characterized in that said non-constant envelope modulation is a multiple-carrier GMSK modulation ~~(220)~~, whereby said method comprises the steps of providing a set of at least two digital signals to both said first and said second modulating units, whereby said creating steps comprise the steps of performing a GMSK modulation of each digital signal and digital ~~combinating~~ combining said modulated signals to form a non-constant envelope multi-

carrier signal, whereby said separating step is performed on said non-constant envelope multi-carrier signal.

20. (Currently Amended) Method according to claim 14 ~~or 15~~, ~~characterized in that~~ wherein said modulation information comprises a request for transmitter coherent combining of a constant envelope modulation signal, and said first digital signal ~~(51)~~ is identical with said second digital signal ~~(71)~~.

21. (Currently Amended) Method according to ~~any of the claims 16 to 20~~claim 16, ~~characterized by~~ comprising the further steps of:

monitoring a power of said analogue transmitter signal or a quantity directly related thereto; and

shifting a phase of said first output signal according to said power.

22. (Currently Amended) Method according to claim 21, ~~characterized in that~~ wherein said monitoring step comprises the step of measuring a power rejected during said combining step, whereby said power of said analogue transmitter signal is provided as a complementary quantity.

23. (Currently Amended) Method according to claim 21, ~~characterized in that~~ wherein said shifting step in turn comprises the step of adjusting an initial offset phase ~~(Δθ)~~ of said first or second modulating in a guard period between two time slots.

24. (Currently Amended) Method according to claim 21 ~~or 22~~, ~~characterized in that~~ wherein said shifting step in turn comprises the step of adding a phase shift ~~(Δθ)~~ in connection to the generation of the first output signal.

25 (Currently Amended) Method according to ~~any of the claims 16 to 24~~claim 16, ~~characterized in that~~ wherein said monitoring and phase shifting is performed when a constant envelope modulation with transmitter coherent combining is used, whereby said phase shifting is preserved when selecting a non-constant envelope modulation.

26. (Currently Amended) Method according to ~~any of the claims 16 to 24~~claim 16, ~~characterized in that~~ wherein said monitoring and phase shifting is performed during transmission of a constant amplitude period of a non-constant envelope signal.

27. (Currently Amended) Method according to ~~any of the claims 16 to 26~~claim 16, ~~characterized by~~ comprising the further step of measuring instantaneous power of said first and second analogue output signals, whereby said shifting is performed according to a comparison of said power of said analogue transmitter signal and said power of said first and second analogue output signals.

28. (Currently Amended) Method according to claim 27, ~~characterized in that~~ wherein said shifting in the case of transmitter coherent combining is performed according to:

$$\phi_{shift} = \cos^{-1}(P_{TR} | (P_{TX1} + P_{TX2})),$$

where P_{TR} is said total power and P_{TX1} and P_{TX2} are said power of said first and second analogue output signals, respectively.

29. (Currently Amended) Method according to claim 27, ~~characterized in that~~ wherein said comparison is performed during a period of a known training sequence in a time slot.

30. (Currently Amended) Method according to ~~any of the claims 14 to 29~~claim 14, ~~characterized by~~ comprising the further steps of:

reducing envelopes of said first and second signals when said modulated signal has a low amplitude.

31. (Currently Amended) Method according to claim 30, ~~characterized in that~~ wherein said step of reducing envelopes comprises minimizing of power consumption.

32. (Currently Amended) Method according to ~~any of the claims 14 to 31~~claim 14, ~~characterized by~~ comprising the further step of:

storing an adjusted phase shift value for each one of a set of used frequencies.

33. (Currently Amended) Method according to claim 32, ~~characterized by~~ comprising the further step of:

storing an adjusted phase shift value for each one of a set of used frequency generators ~~(61A, 61B)~~ for each of said used frequencies.